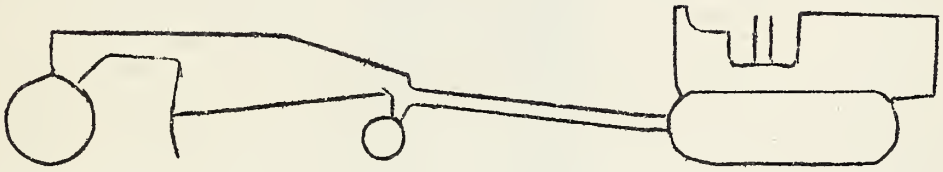
CONSTRUCTION



HINTS

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE

Vol. 2 Washington, D. C. February 22, 1936. No. 4

LOCATION SURVEYS OF RIDGE TOP ROADS

By R. E. Pidgeon, Regional Engineer, Region 8.

One of the principal advantages of a ridge top location from the standpoint of construction and maintenance costs is that advantage can be taken of natural drainage facilities by spilling the water from either side of the road down over the side of the ridge. This obviates the necessity of drainage structures. I have seen a number of locations which have followed the ridge top or height of land absolutely, and of course such a location sheds the water from the road at all points, but there is a falacy to this type of location in that advantage is not taken of the possibilities of securing the best alignment and shortest distance and still take advantage of the natural drainage afforded by a ridge top location.

The principal point to keep in mind in taking advantage of natural drainage afforded by ridge top location, and thus obviating the necessity of drainage structures, is to avoid level stretches or dips in the road, where the location departs from the ridge top, which cause pockets from which it is necessary to take the water across the road. The ridge top location can depart from the height of land and still take advantage of natural drainage so long as end drainage is provided along the road to points where the road crosses the height of land, at which points the water can be spilled over the side of the ridge. This is illustrated by the accompanying sketch which shows a road following the height of land, and an improved location which departs from the height of land, but which

(over)

has all of the advantages of natural drainage and does not require drainage structures. The improved location is on top of the ridge at the points, A, B, C, and D, at which points the water is spilled over the sides of the ridge. It is not necessary to be on top of the ridge at point C since the water could be carried from the break in grade between points C and D along the side of the ridge to the gap at point B, provided the grades and distance are not excessive.

It will be noted that there is continuous end drainage from point A to B. Water from the side hill E is carried along the side ditch to point B. Likewise there is continuous end drainage from the point C to point B. The water from the side hill at F is carried towards both points C and D. The point to note between C and D is that if the improved location were further down the hill the grade might have been level, or there might have been a dip in the grade causing a pocket which would require a culvert to carry the water across the road.

In connection with the attached sketch, if such a condition should exist, it would be advisable to give further study to the section from A to C and determine whether natural drainage could be secured by dropping further down on the hillside as noted by the dotted line. Even if one or more culverts were required on this location, the problem would be to balance the total ultimate cost of the two routes, considering initial cost and maintenance.

This discussion is applicable primarily to rolling country, such as encountered in the Southern Pine and Piedmont sections of Region 8, and the low hills of the mid-western states, but the general policy should be applicable to all conditions.

PROTECTION OF TRUCK TARPAULINS

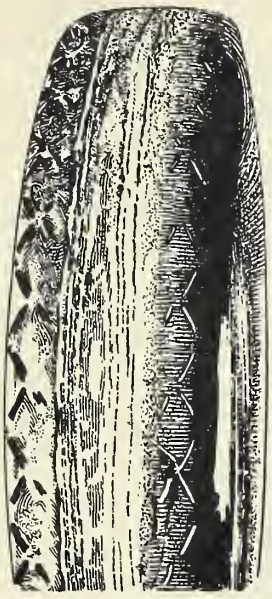
Submitted by C. V. Stevens - Inspector, Region 1.

Recent inspections of trucks equipped with tarpaulins and bows have shown considerable ripping, tearing and wearing where the canvas comes in contact with sharp edges, corners and the heads of bolts. Covering these places with strips of old fire hose or pieces of old inner tube will protect the canvas and increase its life.

Canvas tarps are generally tied to the truck beds with rope. In bad weather when the tarps and rope become wet, they shrink and the canvas rips. It is suggested that ties be made of inner tube rubber to replace the rope, thus providing an elastic rope which will give when the rope and canvas shrink.

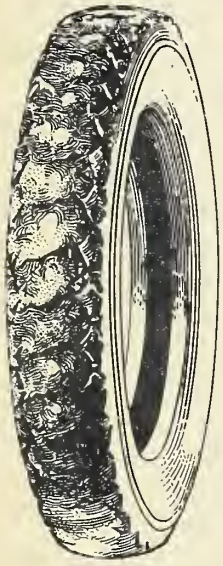
ABNORMAL FRONT TIRE WEAR

CASE 1



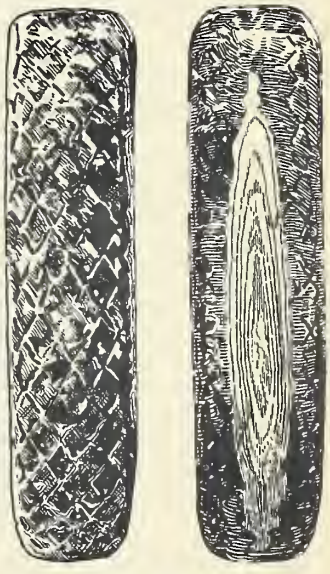
CASE 2

CASE 3



CASE 4

CASE 5



CASE 6

WHAT CAUSED THIS ABNORMAL FRONT TIRE WEAR?

CASE 1.- Early stages of tire wear due to improper toe-in. Note feathered edges of diamonds.

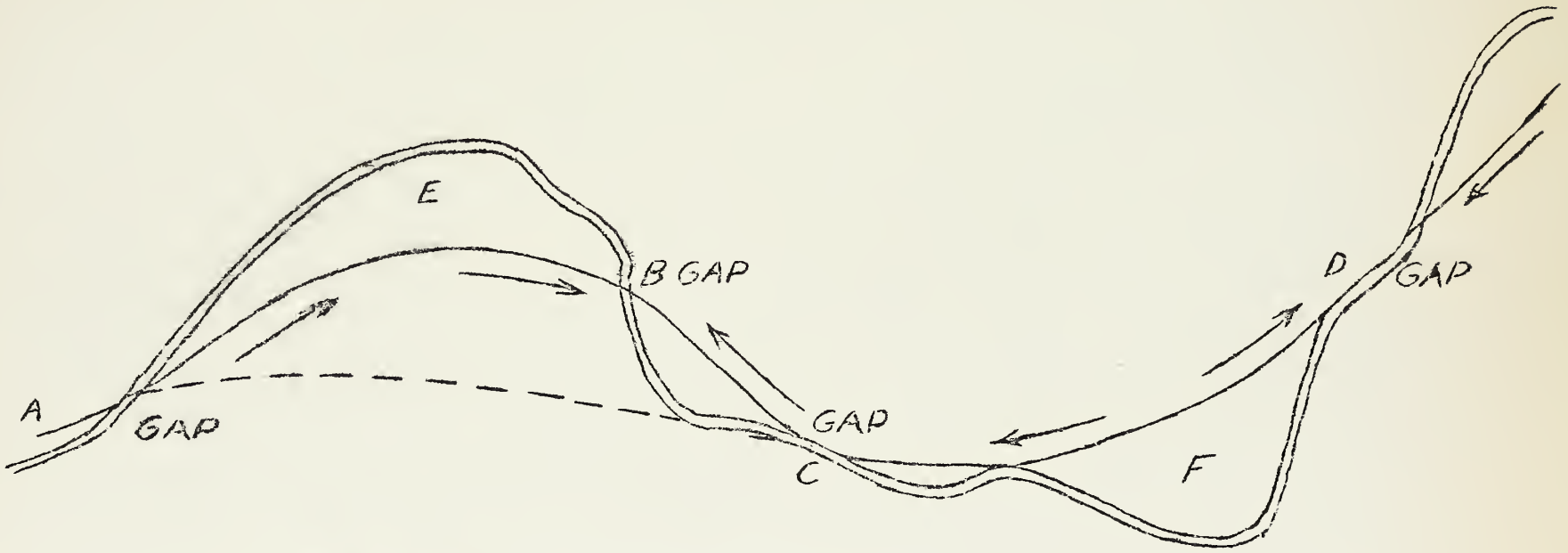
CASE 2.- Final stage of improper toe-in wear. The mileage attained is, of course, low in comparison with a properly aligned tire.

CASE 3.- Uneven wear due to excessive camber.

CASE 4.- Uneven wear due to worn steering knuckle pin bushings —"sloppy fit".

CASE 5.- Uneven wear due to under-inflation.

CASE 6.- Severe grabbing of unequalized brakes. Opposite view of the same tire.



Road following height of land

Improved location

Direction of drainage

Diagram illustrating
Ridge Top Road Locations
REP - R-8
1/3/36